

UNITED STATES DISTRICT COURT
DISTRICT OF NEW MEXICO

THE GRAND CANYON TRUST and)	
SIERRA CLUB,)	
)	
Plaintiffs,)	
)	
vs.)	CV 02-552 BB/ACT (ACE)
)	
PUBLIC SERVICE COMPANY OF)	
NEW MEXICO,)	
)	
Defendant.)	

**PLAINTIFFS' PROPOSED POST-TRIAL FINDINGS OF FACT
AND CONCLUSIONS OF LAW**

Plaintiffs herewith provide their proposed, post-trial findings of fact and conclusions of law regarding Defendant's general defenses.

I. INTRODUCTION

This is civil "citizen suit" brought to enforce requirements of the federal Clean Air Act. Plaintiffs Grand Canyon Trust and Sierra Club seek injunctive relief, civil penalties, and declaratory relief against Defendant Public Service Company of New Mexico for violations of the Clean Air Act at Defendant PNM's San Juan power plant ("San Juan") in northwestern New Mexico.

Pursuant to the Court's October 1, 2003 Stipulated Order Regarding Liability Trial, PNM's general defenses to opacity violations were tried before the Court on November 17, 2003, the Honorable Judge Bruce Black, United States District Judge, presiding without a

jury. The Court previously ruled at the motions hearing on May 9, 2003 that at trial Plaintiffs' prima facie case regarding opacity violations is satisfied through the admission of PNM's continuous opacity monitor ("COM") data.

PNM's general defenses to opacity violations on which it has the burden of proof are: (1) to use COM data to show opacity violations, instead of infrequent visual inspections, makes the 20 percent opacity standard more stringent, (2) some of PNM's COM readings are not accurate due to water vapor that is not particulate matter, and (3) PNM should not be held liable for opacity readings in excess of 20 percent that occurred during startups, shutdowns and malfunctions. At the time of trial, PNM's general defenses (1) and (3) had been resolved.

According to this Court's October 8, 2003 Order regarding Plaintiffs' Motion in Limine, "[t]he purpose of the COM is to routinely monitor compliance, and source operators are charged with maintaining their COM equipment to achieve this goal." Order, p. 1. PNM therefore was precluded from introducing evidence regarding its first general defense that using COM data to show opacity violations makes the opacity standard more stringent. According to the representation of the Plaintiffs, they agree for the purposes of this action that PNM may present evidence regarding its third defense that excess opacity readings may be excused by bona fide startups, shutdowns and malfunctions. Therefore the limited liability trial was held to resolve PNM's second general defense regarding water vapor.

II. FINDINGS OF FACT

The Court makes the following findings of fact:

1. San Juan is a fossil fuel-fired steam generating facility located in County, New Mexico that generates electricity by burning coal to create steam, which passes through a turbine to drive a generator to produce electricity. Transcript, p. 108.
2. San Juan has four separate units that generate electricity in this manner. Units 1, 3, and 4 are the subject of Plaintiffs' opacity claims. Transcript, p. 109; Complaint.
3. Airborne coal combustion by-products from each San Juan unit are forced into the air of northwestern New Mexico through separate 400-foot stacks at a velocity greater than 40 miles per hour. The stacks at San Juan have a diameter of between 20 and 28 feet. PNM discharges combustion exhaust through separate smoke stacks, one for each unit. Proposed Pretrial Order, April 30, 2003, paragraph 11.
4. PNM's discharge of pollutants from its smoke stacks is regulated by Operating Permit P062 ("Permit"). Plaintiffs' Exhibit 2.
5. The opacity of pollution discharged from San Juan Units 1, 3, and 4 is recorded by PNM on a continuous basis by continuous opacity monitors (COMs) located in the smoke stacks of each unit. Answer, ¶ 41.
6. PNM's Permit states that COM data will be used "to demonstrate compliance with" the Permit's opacity limit. Plaintiffs' Exhibit 2, paragraph 3.4.2.1.
7. PNM never appealed the issuance of its Permit. Transcript, p. 24; Plaintiffs' Exhibit 26, p. 5.
8. PNM never sought nor obtained a change in its Permit's opacity monitoring

requirements. Plaintiffs' Exhibit 26, p. 5, Proposed Pretrial Order, April 30, 2003, paragraph 19.

9. The State of New Mexico confirmed in a September 12, 2003 letter to PNM that PNM's Permit requires COMs to be used to determine compliance with the Permit's continuous opacity limit.

Condition 3.4.2.1 [of PNM's Permit] clearly reflects the Department's intent to establish COMs as the applicable compliance method for opacity. The condition cites the opacity limit, 40 C.F.R. 60.42(a)2, and requires the use of COMs "to demonstrate compliance". EPA reference Method 9 is not mentioned. Quite plainly, the Department established COMs - not EPA Method 9 - as the applicable compliance determination method for opacity.

* * *

The Department is aware that PNM has asserted that the Department did not have the statutory authority to establish COMs as the applicable compliance determination method for opacity. PNM's failure to challenge the Department's authority within the appropriate time and under the appropriate process should preclude this collateral attack. Nonetheless, for the record, the Department believes that it had the statutory authority, as well as an obligation under the applicable regulations, *see* 20.2.70.302C(1) NMAC, to establish COMs as the applicable compliance determination method for opacity. Moreover, the Department notes that the EPA both required and approved the specification of this method.

Exhibit 26, pp. 3-5.

10. PNM provided no documentary evidence that it believed, at the time its Permit was issued or at any other time until this lawsuit was filed, provision 3.4.2.1 meant something other than COMs would be used to determine compliance with the opacity limit.

Testimony of Nancy Norem

Q. Okay. Did you at any time write down anything that supports -- to your management or to the group with whom you were working that supports your current interpretation of the permit; that is, that opacity, despite the reading, despite the language of 3.4.2.1, that does not mean that we need to use the COMS to determine compliance because of the provisions of our NSR permit that were

incorporated by reference? Did you ever write that down to your management?

A. No.

Q. Or to anyone else?

A. No.

Q. Is there any record of you making such a contemporaneous judgment or opinion?

A. That --

Q. Of this theory that you have testified here today in Court.

A. That we did not have --

Q. That you would not be required to use the COMS to determine compliance because of your incorporation by reference there [theory]?

A. Is there any written document?

Q. Yes.

A. No, I don't believe there is.

11. The COMs in each smokestack of San Juan are located and certified consistent with the requirements found at 40 C.F.R. § 60, App. B, Performance Specification 1, and 40 C.F.R. Part 75. Answer, ¶ 43; Proposed Pretrial Order, April 30, 2003, paragraph 17.

12. PNM admitted that the opacity readings from the COMs in the stacks are adjusted to indicate what the opacity of pollution would be as seen by an outside observer, at the stack exit.

Testimony of Mike Farley

Q. You're not claiming that the COMS, because it is reading -- taking a measurement in the stack, that that measurement is the opacity across the stack rather than calibrated to determine what the stack exit opacity would be?

A. I'm not sure I understand the question. The COMS reading is adjusted through an optical pathlength ratio to the stack exit opacity. Is that what you're asking?

Q. Thank you. That's right. I appreciate it, and I'm sorry my question was inartful.

Transcript, p. 360, lines 24-25, p. 361, lines 1-9.

13. The PNM COMs record the average opacity of air pollutant emissions from San Juan in six-minute intervals, except for periods of monitor downtime. Plaintiffs' Exhibits 3 & 4.

14. The opacity data from the COMs is retained in a computer at San Juan. Answer, ¶ 44.

15. Pursuant to its Permit at paragraphs 5.1.1.2 and 5.1.3.3, PNM is required to submit on a quarterly basis a written report to NMED that discloses each period of time in which emissions of pollutants from San Juan exceed the applicable standard ("quarterly reports"). Plaintiffs' Exhibits 3 and 4.

16. PNM's quarterly reports contain the following certification: "I certify that the information contained in this report is true, accurate and complete." Plaintiffs' Exhibits 3 and 4.

17. PNM's Permit does not contain an exception to the opacity limit for cleaning air heaters.

Testimony of Mike Farley

Q. By the way, is there an exception in your permit for excess readings that are caused by cleaning air heaters?

A. Not specifically for cleaning air heaters.

Transcript, p. 348, lines 1-5.

18. PNM's Permit does not contain an exception to the opacity limit for load changes

or “ramping.”

Testimony of Mike Farley

Q. Is there a load change exception in your permit?

A. No, there isn't.

Transcript, p. 363, lines 9-11.

19. Each certification was signed by an authorized PNM official.

20. PNM was unable to state whether, but for the presence of uncombined water, any COM reading in excess of 20 percent opacity would have been less than 20 percent.

Testimony of Mr. Farley.

Q. On page 14, Mr. Farley. We can just work with the first several readings there at the top of the page, on November 19, where there are apparently several -- at least one reading that was 27.3, and another one was 27.9. With respect to those readings, or any others that you've identified were caused by water vapor through your method, can you tell us in a quantified sense what the opacity would have been, but for the water vapor?

A. No, I couldn't.

Q. You can't do that?

A. I can't do that.

Q. It wouldn't be zero, I take it?

A. No, it wouldn't be zero.

Q. And is that true for all of the readings that you've identified as being caused by water vapor?

A. That they wouldn't be zero?

Q. No, I'm sorry. Stepping back one prior question, which is that you are unable to identify the extent to which water vapor affected the reading?

A. That's correct.

Q. That is to be able to quantify the effect of the water vapor alone?

A. That's correct. We could make a good attempt at it by looking at the opacity prior to the decreased stack temperature, and after, but to, you know, an absolute -- say, well, half of this number was water vapor, no.

Q. And you haven't done that for the purpose of this case or your testimony; is that correct?

A. No, I have not.

Transcript p. 363, lines 21-25, p. 364, lines 1-25, p. 365, lines 1-2.

21. PNM presented no quantitative evidence regarding the potential impact of condensed water on the COMs readings.

Testimony of Dr. Grady Nichols

Q. Is it also fair to say that our analysis, you haven't quantified the effect or the impact of condensed water?

A. On what?

Q. On opacity.

A. No. I have written a report on how the water vapor would condense and cause droplets, and the droplets, in turn, would, in fact, influence opacity.

* * *

Mr. Beach: He's going to tell the impact that condensed water vapor in the stack has on opacity. He's not going to say that a certain amount of water vapor would make it 80 percent opaque, or anything of that nature, if that's what is referred to.

The Court: So he's going to say it makes it less opaque because there is more water vapor?

The Witness: More opaque, Your Honor.

Mr. Beach: It would make it more opaque, the presence of water vapor, given by the COMS. But we're not going to give any numbers or percentages.

Transcript, p. 430-431.

22. PNM submitted no evidence regarding the quantity, particle size and distribution, and chemical composition of any alleged condensed water droplets. Because that information, at a minimum, is necessary to determine the extent to which any water droplets affected the COMS, PNM did not provide any evidence showing any COMS opacity readings over 20 percent would have been less than 20 percent but for the presence of such droplets.

Testimony of Grady Nichols

Q. You don't have, therefore, any direct evidence to provide to the Court here regarding the quantity or particle size distribution of particles at any given period of time at San Juan; isn't that correct?

A. I would have information that is expected to go with the fly ash that exits from there. I would not have information about the droplets.

Q. So -- and my question was to the quantity, particle size distribution, or chemical composition of the droplets. You don't have any direct evidence of --

A. Of the droplets themselves, I do not.

Transcript, p. 475, lines 18-25, p. 476, lines 1-5.

* * *

A. Are you asking if you were to attempt to determine what the contribution to opacity is from the water?

Q. From the water droplets, yes.

A. You would need to know the amount of water that is condensed and the particle size distribution of those water droplets in order to make an estimate of their contribution.

Q. And you do not know or have not testified and are not able to testify to those, as you put it, key elements to make that determination; isn't that correct?

A. That's correct. You are not able to predict the particle size distribution that

will occur when water condenses in a gas stream. You can know how much water will condense, but you cannot predict its particle size distribution.

Transcript, p. 477, lines 3-19.

* * *

Q. And isn't it true that, based upon what you've said, that to determine the extent to which any opacity readings shown by the COMS to be over 20 percent has been influenced by the condensed water vapor, you would need to know the droplet size, the particle distribution, composition, and the other factors; isn't that true?

A. If you're attempting to attribute a portion to the condensed droplets, you would need at least that much information.

Q. At least that much, and perhaps more?

A. Yes.

Transcript, p. 480, lines 11-22.

23. PNM's expert admitted that PNM has improperly characterized thousands of opacity readings over 20 percent opacity as being caused by "water vapor" when in fact PNM did not have sufficient information to make such a statement.

Testimony of Grady Nichols

Q. For example, I'm on now page 80 -- or excuse me, 90. And there is a reading, the maximum value of which was apparently 84.9 opacity. Do you have any information as to the degree or the quantification of water droplet contribution to that value of 84.9?

A. I have no information about it at all, other than the description given for the plant's opinion for the cause.

Q. Understanding what you know of San Juan and its emissions, and as a scientist in the field, do you believe it's correct to characterize the entire 84.9 percent opacity as being caused by uncondensed water?

A. You can guarantee that it is not, because there will be some amount of fly ash

emitted which will have some opacity of their own.

Q. And we don't know, therefore -- turning back to my example that we did earlier this morning -- where the opacity was at 30 percent, and then went to -- 45, I believe was our example -- due to the water droplet influence, whether this reading here of 84 may have -- just searching for a term, but -- a core opacity value or an opacity without condensed water present of greater than 20 percent; it may have a value of 30 or 40?

A. You don't know anything about it.

Transcript, p. 484, lines 4-21.

24. PNM did not submit any evidence that showed any of the opacity violations shown in Plaintiffs' Exhibits 3 and 4 would have been below 20 percent opacity but for the presence of uncombined water.

Testimony of Grady Nichols

Q. But you are unable to testify here, and provided no information in your report, to quantify the effect of uncombined water on the opacity readings before you in plaintiffs' exhibits; is that correct?

A. If you don't know the droplet size distribution and concentration, then you don't know what contribution it makes to opacity.

Q. And you don't know the droplet size distribution or composition during those periods, do you?

A. That's correct.

Transcript, p. 486, lines 4-15.

III. CONCLUSIONS OF LAW

1. PNM's Permit limits the emission of visible pollutants from the smoke stacks of San Juan Units 1, 3, and 4 to no more than 20 percent opacity, except for one six-minute period per hour of not more than 27 percent opacity. Exhibit 2, paragraphs 3.2.1 and 3.2.2.

2. PNM's Permit establishes COMs as the opacity compliance determination method. Exhibit 2, paragraph 3.4.2.1. PNM's Permit at paragraph 3.4.2.1 states "[f]or opacity in order to demonstrate compliance with 40CFR60, Subpart D, Section 60.42(a)2, opacity shall be continuously monitored in accordance with Section 60.45(a)."

3. PNM's witnesses conceded at trial that the 20 percent opacity limit in PNM's permit, that specifically refers to 40CFR60, Subpart D, Section 60.42(a)2, is a continuous limit that applies at all times.

Testimony of Russell Huffman

Q. And the opacity requirement applies, the opacity standard for those units applies all the time, does it not?

A. There is an opacity limit, yes, all the time.

Transcript, p. 178, lines 10-14.

Testimony of Nancy Norem

Q. I have a copy of the New Source Performance Standards that I'm providing to you. Would you please look over Section 60.42, and read for us the limit that is set forth at 60.42(a)2, please.

A. You would like me to read 60.42(a)2?

Q. Please.

A. "On and after the date on which the performance test required to be conducted by Section 60.8 is completed. No owner or operator subject to the provisions of this subpart shall cause to be discharged into the atmosphere from any affected facility any gases which exhibit greater than 20 percent opacity except for one 6-minute period per hour of not more than 27 percent opacity."

Q. And would you agree with Mr. Huffman that that is a requirement that is a continuous one that applies to the facility on a continuous basis?

A. That the opacity standard --

Q. Yes. 60.42(a)2.

A. Yes.

Transcript, p. 211, lines 9-25, p. 212, lines 1-3.

4. PNM's witnesses conceded at trial that PNM's permit does not contain any exceptions to the opacity limit for cleaning air heaters or for load changes.

Testimony of Mike Farley

Q. By the way, is there an exception in your permit for excess readings that are caused by cleaning air heaters?

A. Not specifically for cleaning air heaters.

Transcript, p. 348, lines 1-5.

Q. Is there a load change exception in your permit?

A. No, there isn't.

Transcript, p. 363, lines 9-11.

5. The 20 percent opacity limit in PNM's Permit and 40 C.F.R. § 60.42(a)(2) regulates the emission of "particulate matter."

6. The term "particulate matter" is defined as "any finely divided solid or liquid material, other than uncombined water, as measured by Method 5 of Appendix A to this part or an equivalent or alternative method." 40 C.F.R. § 60.2(v) *See also* 20 NMAC 2.2 II.U.

7. PNM's Permit requires PNM to report any deviation from permit limits within 24 hours, and file a written report within 10 days. Exhibit 2, paragraph 5.3. Deviations, including any claimed malfunction or emergency, which have not been reported pursuant to paragraph 5.3 are not excused.

8. PNM's Permit does not contain exceptions to the opacity limit for load changes or cleaning air heaters.

9. PNM's general defense that if COMs are used to determine opacity compliance then the 20 percent opacity limit becomes more stringent is rejected as a matter of law.

10. PNM's general defense that only Method 9 may be used to establish opacity compliance is rejected as a matter of law.

11. PNM's general defense that data from its COMs are not equivalent to Method 9, and that its COMs are providing false readings due to water vapor, is rejected as a matter of law.

12. PNM did not meet its burden of proof regarding its general defense that COMs are providing false readings due to water vapor because PNM did not show the alleged water vapor is composed solely of uncombined water. Uncombined water is water that does not contain solids or particulate matter and is not chemically bonded to another substance.

13. PNM has the burden of proof to establish any of its specific defenses such as malfunctions. Plaintiffs' Exhibit 2, paragraph 7.4; Anderson v. Farmland Industries, Inc., 70 F. Supp. 2d 1218, 1225-26 (D. Kan. 1999).

Respectfully submitted,
DATED this 22nd day of December, 2003.

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CERTIFICATE OF SERVICE

I HEREBY CERTIFY that on the 22nd day of December, 2003, I caused an electronic copy of Plaintiffs' Proposed Post-Trial Findings of Fact and Conclusions of Law to be emailed to counsel of record below:

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